

# **Turkey Creek AgNPS SALT Project**

## **Final Report**

### **Carroll County SWCD**

#### **INTRODUCTION**

Carroll County is a rural community located approximately 85 miles east of Kansas City and lying to the north of the Missouri River. The AgNPS SALT area is located in the northwest part of Carroll County and the northeast corner of Ray County. The Turkey Creek AgNPS SALT area encompasses approximately 62,000 total acres with the majority of the project area, approximately 58,750 acres in Carroll County, and approximately 3,250 acres located in Ray County.

The land uses in the AgNPS SALT area included 28,950 acres of cropland making up 47 percent of the project area, 14,087 acres of grassland and 9,000 acres of CRP land, 9,869 acres of timber, and 97 acres or less than one percent in streams, ponds, and wetlands.

The Carroll County Soil and Water Conservation District addressed water quality issues with the Environmental Protection Agency (EPA) Section 319 Grant Project, and the DNR AgNPS SALT Project. Funding for the information, education, and the lagoon construction, and some of the manager's salary were paid with EPA 319 Grant Funds. The EPA 319 Grant ran in conjunction with the DNR AgNPS SALT Project. Funds from the AgNPS SALT were used to pay for BMP implementation, cost-share on the installation of conservation practices and incentives to landowners, and a portion of the manager's salary. The two projects overlapped the same acreage and complemented each other as far as support funding for water quality and soil erosion practices.

The critical area was designated as the lands closest to the major tributaries of Turkey Creek which included 36,597 acres of land. The most intensely row cropped land and all livestock confinement units were in this section of the SALT area. Land uses in the AgNPS SALT area included 21,958 acres of row crop farming, 9,042 acres of grassland, 5,300 acres of CRP land, 250 acres of woodland, and 47 acres of riparian corridor.

There are approximately 310 farm owners in the watershed and 144 landowners in the critical area selected. Row crop farming is the primary land use for the watershed and critical area. There are several large livestock confinement units for hogs, beef cattle, and dairy cows.

Over the past five years (10/01/97 to 09/30/02) our office was fortunate to have the EPA Federal Grant to help improve the water quality and the quality of life in our county.

Over the life of the Turkey Creek AgNPS SALT project we have applied conservation practices to the land and educate landowners, producers, and young people on the importance of water quality and groundwater.

## **WORKSHOPS AND FIELD DAYS**

With the aid of workshops and field days on topics like Nutrient Management, Pest Management, GPS Technology, No-Till Systems, Cover Crops, Stream bank Stabilization, BMP Equipment/Technology Field Day, No-Till Field Day, we have introduced and exposed new and different methods of agriculture to SALT area landowners, producers, and young people.

Speakers Dave Johnson, Odie Swanegan with NRCS, Parman Green, William Casady, Wayne Crook with University Extension, Lee Metcalf, Shawn Banks, Scott Ryan with Missouri Department of Conservation, Jerry Becker, District Technician with the local Soil and Water Conservation District, Gordon Deitch a local Landowner, and area Implement Dealers, and Agi Chemical Company's have provided detailed information in their fields of expertise at these field days and workshops.

## **NEWSLETTERS**

During the AgNPS SALT project we have written, printed, and mailed to area producers and landowners some 9 different newsletters totaling 3,150 mailings, and a Project Overview Brochure totaling 350 mailings. Topics of these newsletters have included an "Introduction to the project and cost-shared practices", "Water Quality and Groundwater Contamination", "Buffer Strips and Water Quality", "Stream bank Stabilization and Riparian Buffers", "Integrated Crop Management Systems", "The Farm-A-Syst and Water Quality" (farming ranking system), and "Soybean Pest Management and the Bean Leaf Beetle."

## **BEST MANAGEMENT PRACTICES & CONSERVATION PRACTICES**

Through implementation of Best Management Practices, Conservation Practices, and monetary incentives to landowners for trying new methods and technologies, the following accomplishments, listed by conservation practices, were completed: 958 acres of Pest Management, 1004 acres of Nutrient Management, 53 acres of Cover Crops, 364 acres of High Residue Use, 123 acres of Conservation Cropping Sequence, 100 acres of High Residue Tillage, 153 acres of No-Till Planting, 1,057 acres of Long Term No-Till, 16 acres of Filter Strips, 22 Water and Sediment Basins, 1,664 acres of Terrace Systems, 167 Terraces Relief Wells (UGO Vertical Outlets), 45 acres of Waterways, 15 Diversions, 33 Grade Stabilization Structures, 1 Animal Waste Systems, 795 Soil Tests.

## **INFORMATION AND EDUCATION**

With the aid of a Groundwater Flow Model that was purchased with 319 Grant funds, we have been able to inform and educate approximately 116 adults and 1011 young people of the effects on groundwater by excessive applications of nutrients, pesticides, and the mismanagement of other chemicals on our soil, groundwater, and runoff water.

We have been very fortunate to partner with the Norborne School District and the Norborne Stream Team. The Stream Team has been doing monthly monitoring for nitrates, dissolved oxygen, checking the pH levels, and monitoring the invertebrates and other wildlife that inhabit both the Turkey and Wakenda Creeks in the project area using the Wakenda Creek as a standard.

This partnership has been a learning tool for the Stream Team as well. Members of the Norborne Stream Team placed first in the Missouri State Envirothon competition in 2001 and went on to compete in the National Envirothon competition that same year.

## **WATER QUALITY MONITORING**

The partnership has also given our project valued data on the condition of the water and wildlife in the project creeks. Over the life of the project and after the BMPs and Conservation Practices were installed in the project area, we found that the nitrate levels and pH levels have dropped in both project creeks. The nitrate level in Turkey Creek dropped from 4.0 ppm to a level of .25 ppm. The nitrate level in Wakenda Creek has also dropped from a level of 3 ppm to a level of .25 ppm. We have also found that the pH level in both project creeks have dropped as well. The pH level in both creeks fell from a pH level of 9 to a pH level of 7.5. This is due to the reduction in the application of nutrients, pesticides and the many BMPs and conservation practices that have been applied in the watershed project area above the water monitoring sites, and the fact that the runoff has been less due to two drought years.

## **CONCLUSION**

The Turkey Creek AgNPS SALT project has been a learning experience for everyone involved. Not only have we made the public take notice of something that is so often taken for granted and so important for the existence of life, but we in our office have also developed a renewed awareness and greater respect of this most fragile and valuable element for life, water quality.